Haier SERVICE MANUAL

Order No.Ref0912S012V0

Chest Freezer

MODEL: BD-103GAA

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It dose not contain warnings and cautions to advice non-technical individuals of potential dangers in attempting to service a product. Product powered by electricity should by serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Chapter 1 General Information

1-1. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1) Leakage Current Cold Check

2) Leakage Current Hot Check

3) Prevention of Electro Static Discharge (ESD) to Electrostatic Sensitive

1-2. Insurance Test

1. Check if there is any leak of current.
2. Cut out the power supply before the repair to avoid an electrical shock hazard.
3. In the case of a live-line test, insulating gloves should be worn to avoid potential electrical shock.
4. Confirm the rated current, voltage and capacity before testing with any kinds of instruments.
5. Watch if the upper door is open when you check something at a lower position.
6. Take out every part in the cabinet before moving the machine, especially things like panels (e.g. glass shelf).
7. Please wear intact cotton gloves when repair any parts of the evaporator, so that scratches by the sharp fins can be avoided.
8. If there is a breakdown with the refrigeration system, please surrender the machine to the service center, else the leaked refrigerant may pollute the atmosphere.
9. The refrigerator use AC of 115V with a frequency of 60Hz.
10. A big fluctuation of voltage (exceed the range 100～120V) may cause a start failure of the refrigerator, a burn-out of the control panel and compressor, or an abnormal sound from the compressor in operation.
11. Take care not to damage the supply line. Don’t yank at the line; pull the plug out gently from the receptacle. Don’t press the line under the cabinet or step on it. Take care not to roll on or damage the

supply line when moves the machine from the wall.

12. In the case of leakage of inflammable gases like carbon monoxide, open the door and windows. Don't pull out or insert the plugs of the appliance.
13. Don't touch the refrigeration surface of the freezing compartment when the refrigerator is in operation, especially when your hand is wet, else you may be glued to the surface.
14. Pull out the plug of power supply during clearance or power outage. Wait at least five minutes to resume the power supply in order to prevent damage to the compressor caused by continuous restart.

Photo used in this manual

The illustration and photos used in this Manual may not base on the final design of products, which may differ from your products in some way.

1-3. How to read this Service Manual

1-3-1. Using Icons

The meaning of each icon is described in the table below:

Note:

A "note" provides information that is not indispensable.

Caution:

A "caution" is used when there is danger, that through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.

Warning:

A "warning" is used when there is danger of personal injury.

Reference:

A "reference" guides us to other places in this binder or in this manual, where we will find additional information on a specific topic.

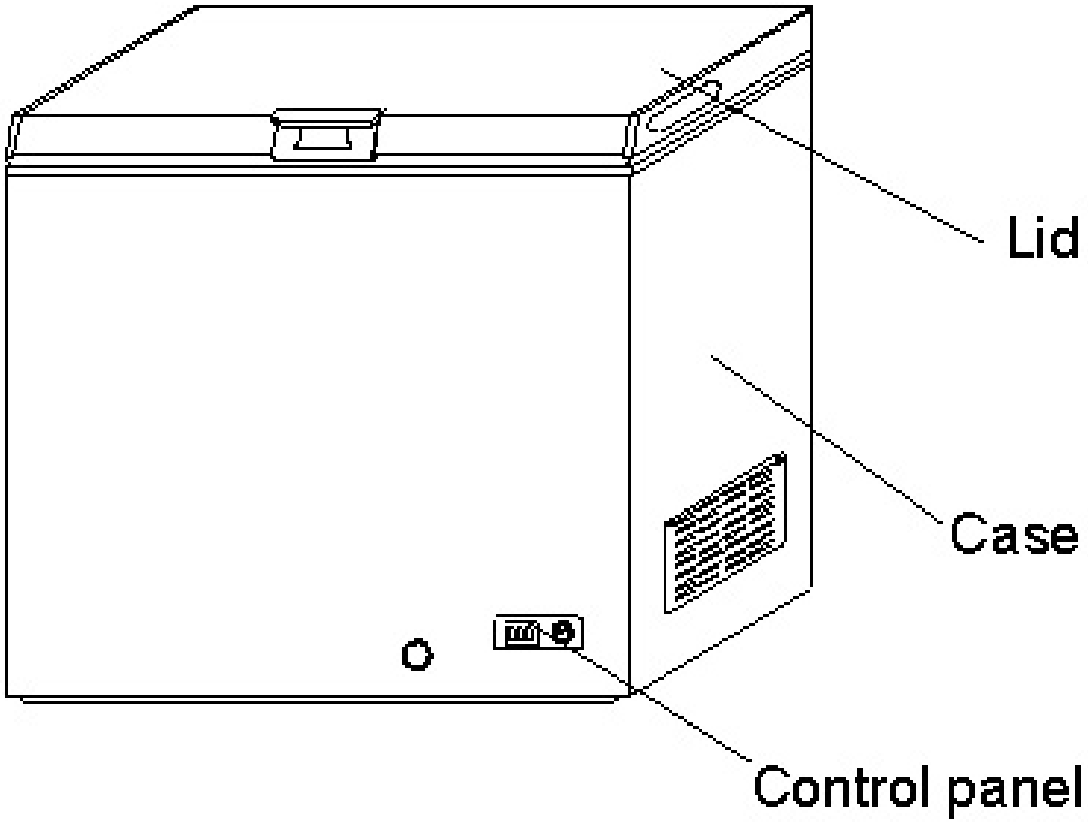
Chapter 2 Product Feature

2-1. SPECIFICATIONS

	CHEST FREEZERS	
	Photo	
1.	**Type Model**	**BD-103GAA**
	Commercial brand	**Haier**
	Product description	**Chest Freezer**
	Type of appliance (FS=free standing / BI= built-in)	**FS**
	Energy efficiency class	**A+**
	Climate class (N=16-32℃ ST=16-38℃ T=18-43℃)	**T**
	Freezer star rating	***/*****
	Approvals (VDE / TÜV / IMQ / NF / ÖVE / DEMKO etc.)	**CE/GS**
	Certifications	**-**
2.	**Key features**	
	Gross capacity	**106**
	Total net capacity	**103**
	Freezing capacity（kg/24h）	**10**
	Energy consumption/year	**172**
	Max storage time at breackdown	**30**
	Defrosting (Manual-Automatic)	**Manual**
	Kind of coolant *(R134a/R600a)*	**R600a**
	Foaming components *(R141b/C-P)*	**C-P**
3.	**Technical data**	
	Voltage / frequency	**220-240~ / 50**
	Input power / currency	**70/0.4**
	Lenght of cable / incl. plug	**150/155**
	Temperature range (from>to)	**≤ -18**
	DIN 8950 resp. 8953	**-**
	Energy consumption / year	**172**
	Energy consumption (EN153) per 24 h	**0.47**
	Cooling system: (K=Compressor / A=Absorbtion)	**K**
	Maximum noise level	**44**
4.	**Aesthetics**	
	Door	**Flat(forepart is acclivitous)**
	Chest	**straight edges**
	Colours:	

	Cabinet	**white**
	Top	**white**
	Door glass	**-**
	Door frame	**white**
	Fascia panel / Handle (w/b/g/s)	**white/white**
	Inside door/-drawers (W=white T=transparent)	**-/-**
5.	**Equipment & accessories**	
	Product classification (Super eco/Eco/Standard)	**Eco**
	Lid (Number/Handle/Lock)	**1/●/-**
	Type of lid (Hinge/Counter balanced/Sliding)	**Hinge**
	Inside walls (Stainless steel/Aluminium/Synthethic mat.)	**Anodized Aluminum**
	Insulation Lid thikness	**7.85**
	Walls thikness	**6.5**
	Baskets number	**1 (metal)**
	Defrost drain	**●**
	Interior light	**-(Optional)**
	Calendar	**-**
	Adjustable thermostat	**●**
	Fast freeze lamp (yellow)	**●**
	On light (green)	**●**
	Breakdown light (red)	**●**
	Fast freeze switch	**●**
	Freezer temperature warning indicator (LED / by sound)	**-**
	Thermometer (Outside / In partition)	**-**
	Maximum loading level marking	**-**
	Adjustable feet (front / rear)	**-(unable adjustable feet)**
	Mobility wheels (front / rear)	**-(Optional)**
	Flush back skin evaporator	**-**
6.	**Product net dimensions**	
	Unit dimensions ***(H / W / D)***	**84.5/57/55**
	Height with open lid	**134.5**
	Net weight	**31**
7.	**Packing dimensions & loadability**	
	Packing dimensions ***(H / W / D)***	**89/62.5/58.5**
	Gross weight	**34**
	20 ' container load	**75**
	40 ' container load	**151**
	40 ' High cube container load	**227**
8.	**Service**	
	User instruction *(languages)*	**GB,DE,FR,IT,SP,PT,NL**

2-2. External views



Chapter 3 Installation, adjustments and maintenance

3-1. Unpacking

1. Remove all packaging material; this includes the foam base and all adhesive tape holding the freezer accessories inside and outside.

2. Inspect and remove any remains of packing, tape or printed materials before powering on the freezer.

3-2. Adjusting

1. The freezer is designed for freestanding installation only. It should not be recessed or built-in.

2. Place the freezer on a floor strong enough to support it fully loaded.

3. When moving freezer, never tilt it more than a 45-degree angle. This could damage the compressor and the sealed system.

4. If freezer is tilted let it stand in an upright position for at least 24 hours prior to plugging. This is to allow the refrigerant to settle.

5.Proper Air Circulation

To assure the freezer works at the maximum efficiency it was designed for, you should install it in a location where there is proper air circulation, Plumbing and electrical connections.

The following are recommended clearances around the freezer:

Sides……..2”(50mm)

Top. ……2”(50mm)

Back……..2”(50mm)

Do not over fill freezer for proper internal air circulation.

3-3.Electrical Requirement

Make sure there is a suitable power Outlet with proper grounding to power the freezer.

Avoid the use of cutting off the third grounding, this is a dangerous practice since it provides no effective grounding for the freezer and may result in shock hazard.

3-4.Defrost

Defrosting and Draining the Freezer

1. Defrost whenever the frost becomes 5MM thick. Never use a sharp or metallic instrument to remove the frost as it may damage the cooling coils.(A punctured coil will void the warranty)
2. Unplug the unit. For draining, place a tray beneath the outer drain plug. Pull out the drain dial and rotate it so that the arrow points down ward. This will let the water flow out into the tray.
3. Remove the drain plug from the inside of the freezer. Defrosting usually takes a few hours. To defrost faster keep the freezer door open. When done, push the drain dial in and turn the arrow to the up position. Re-plug the drain plug inside the freezer compartment. Note: monitor the container under the drain to avoid overflow.

• Rest the temperature control to the desired setting.

3-5. Cleaning

Outside. Protect the paint finish. The finish on the outside of the freezer is a high quality baked-on paint finish. With proper care, it will stay new-looking and rust-free for years. Apply a coat of appliance polish wax when the freezer is new and then at least twice a year. Appliance polish wax also works well to remove tape residue from freezer surfaces.

Keep the finish clean. Wipe with a clean cloth lightly dampened with appliance polish wax or mild liquid dishwashing detergent. Dry and polish with a clean, soft cloth. Do not wipe the freezer with a soiled dishwashing cloth or wet towel. Do not use scouring pads, powdered cleaners, bleach, or cleaners containing bleach.

Inside. Clean the inside of the freezer at least once a year. We recommend that the freezer be unplugged before cleaning. If this is not practical, wring excess moisture out of sponge or cloth when cleaning in the vicinity of switches, lights or controls.

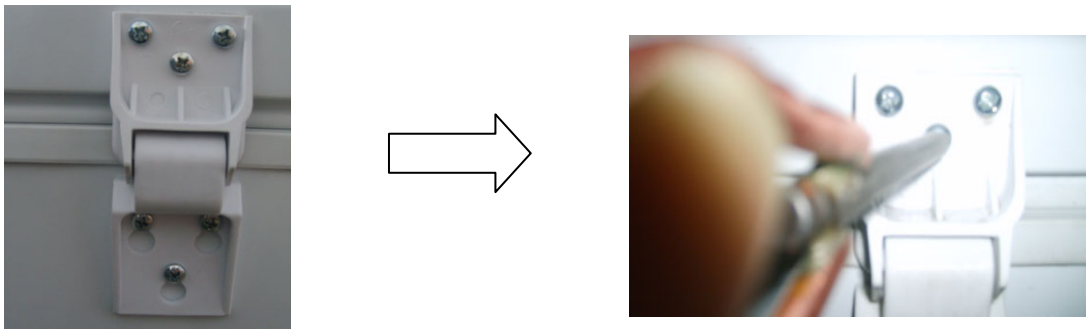
An open box of baking soda in the freezer will absorb stale freezer odors. Change the box ever y three months.

⚠ Care should be taken in moving the freezer away from the wall. All types of floor coverings can be damaged particularly cushioned coverings and those with embossed surfaces.

Chapter 4 Disassembly

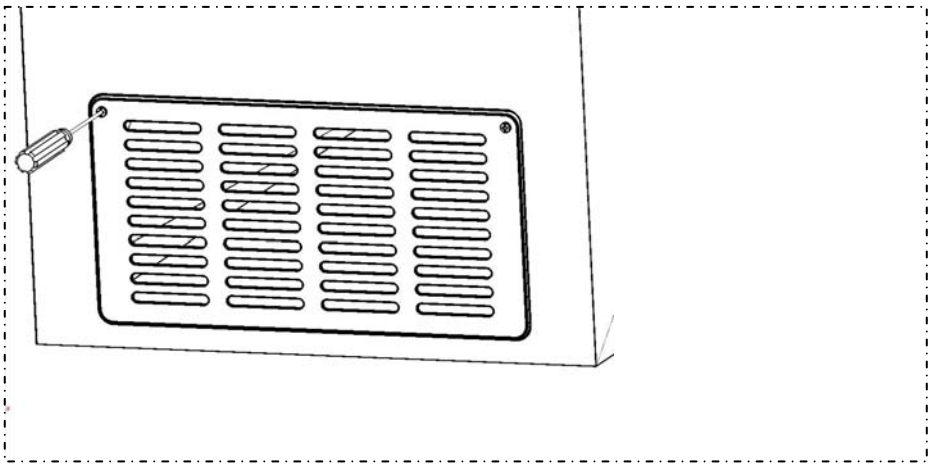
4-1. Door assembly (Door, hinge)

1. Disassemble the hinge assembly and the hinge cover: screw off the two screws on the hinge cover, take away the cover, then screw off the eight screws on the bottom hinge, so the whole hinge could be moved.



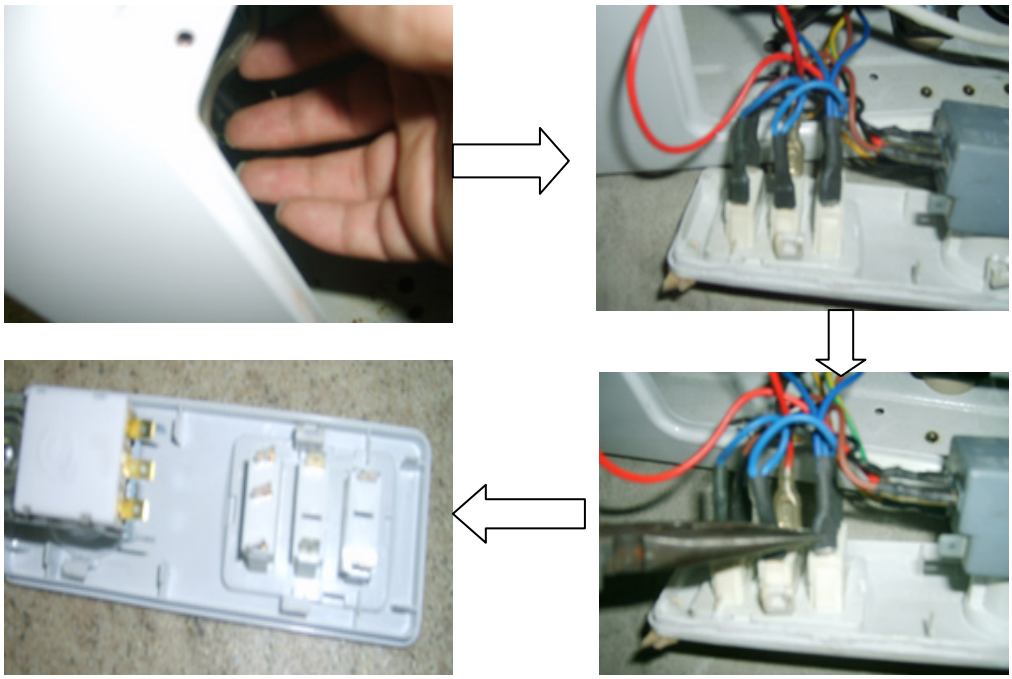
4.2. Compartment Grill assembly

Unscrew the two screw of grill, we can take away the grill.



4-3. Control panel assembly (Panel, cover board, knob, indicator light)

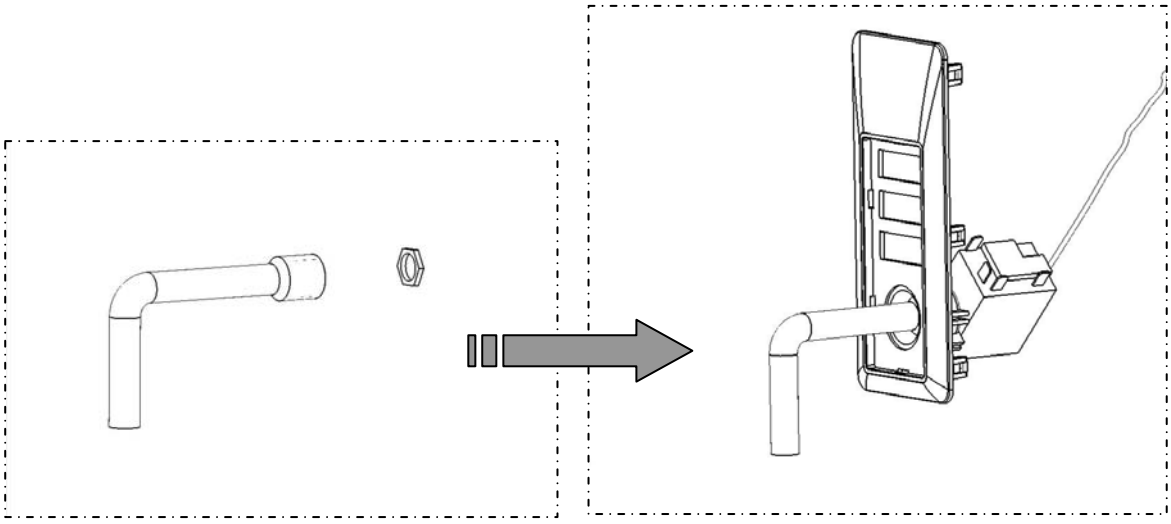
Stretch your arm into the compartment, push the connector inside, when the clip falls off the cabinet, and take off the control panel and the connective wire cord with an acutilingual plier.



4-4. Thermostat assembly

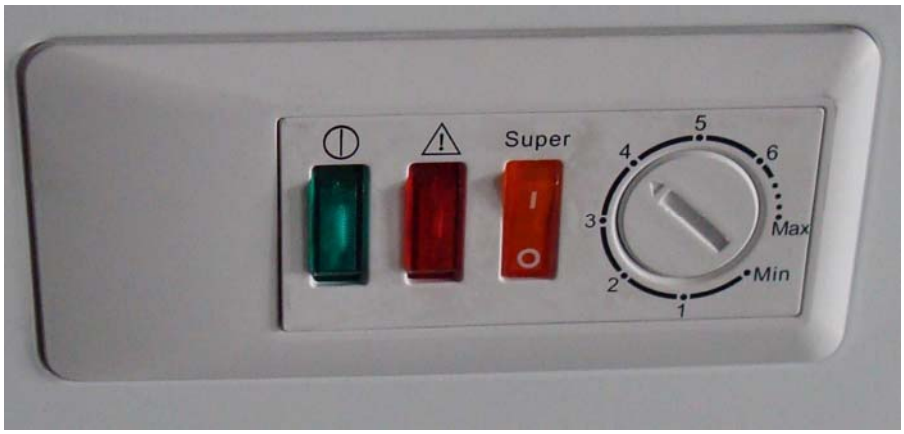
First take off the knob (refer 4-3), Use turnbuckle spanner or acutilingual plier, unscrew the turnbuckle, then thermostat can be moved from back of panel.

Note: When assembly thermostat you should placed thermostat in originally direction.



Chapter 5 Control and display system

5-1. Control panel



To prevent temperature being accidentally modified, the control is intentionally resistant to turning. To vary the setting, please use a coin or screwdriver.

1. To switch on: Turn the control to the right adjust temperature to the level you require, between:

Min(slight cooling) and max (Lowest temperature)

If the appliance is equipped with indicator-lights, the following guide explains what is meant by each light up:

- Green = CONTROL

The appliance is under current and operating

The green control light must always be on when the appliance is connected to the mains and switched on. It is very important to pay attention to this, because in the event of a power failure, the red and yellow lights stop operating and do no longer provide a warning.

- Red = ALARM

Interior temperature too high

If the red indicator-light goes on, there may be several reasons for this, namely:

■First start-up of appliance

■Restart after defrosting

■Filling freezer with fresh food

In these cases it is normal that the red indicator-light goes on. It goes off automatically when the interior temperature reaches approximately –15°C.

Switch on the SUPER FREEZE SWITCH (if equipped with). (switch off again not more than 24 hours later or when the red light has gone off).

Reopen the appliance, if possible, only after the red light has gone off.

If the red control light nevertheless stays on after 12 to 24 hours, there may be serious problems.

Consult the Troubleshooting guide " what is when..." chapter at the end of this operating manual.

- Yellow = SUPER FREEZE SWITCH

When the super freezer switch is on and the thermostat function is disabled.

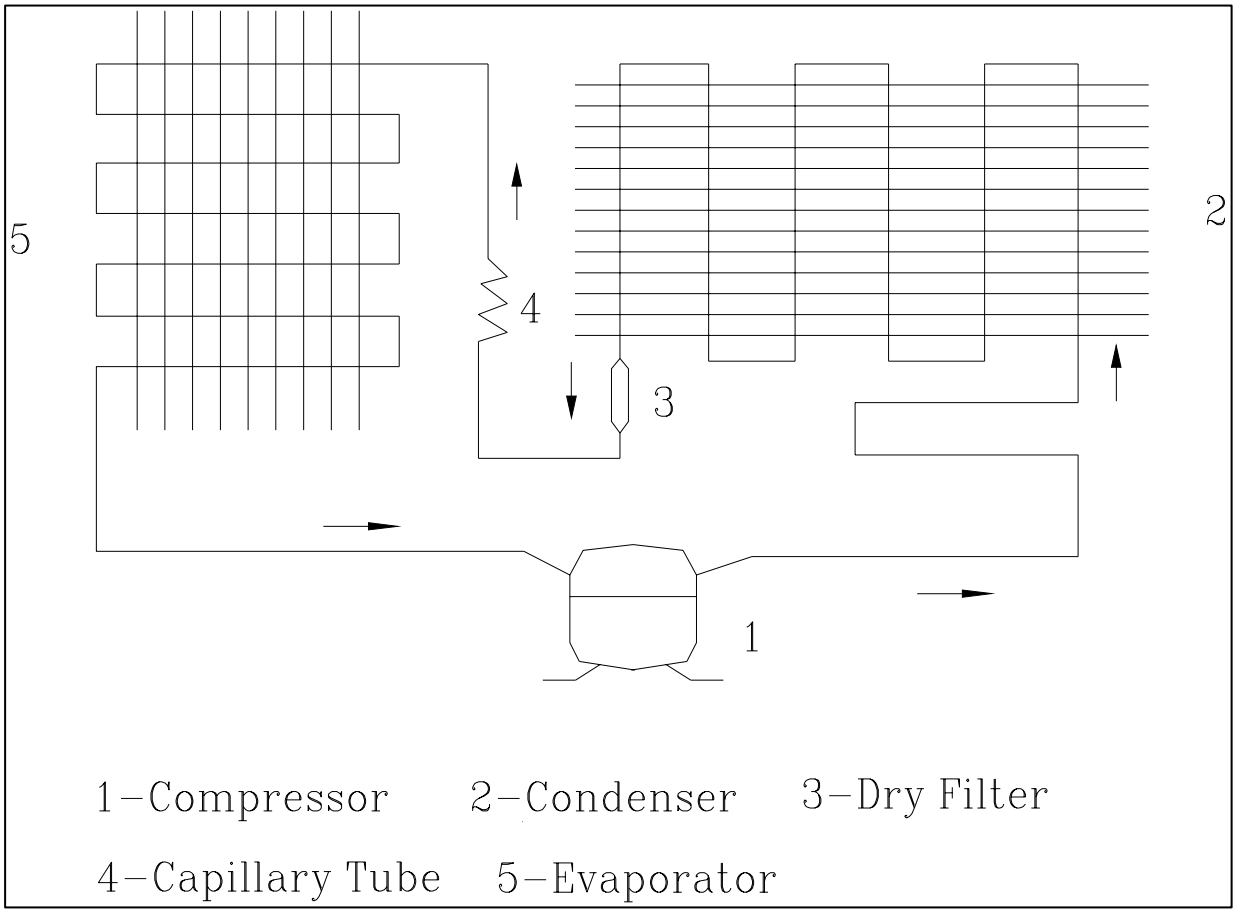
The compressor continues cooling until the SUPER FREEZE switch is turned off again.

5-2. Starting the Freezer

1. Clean the inside of the freezer with a mild solution of baking soda and water
2. Connect cord to power outlet.
3. On models with a Temperature Monitor or High-Temp Alarm Switch, set the switch to the *OFF* position.
4. Make sure the temperature control is set at 4.
5. Allow freezer to operate for at least four hours before placing food inside.
6. On models with a Temperature Monitor or High-Temp Alarm Switch, set the switch to the ON position.

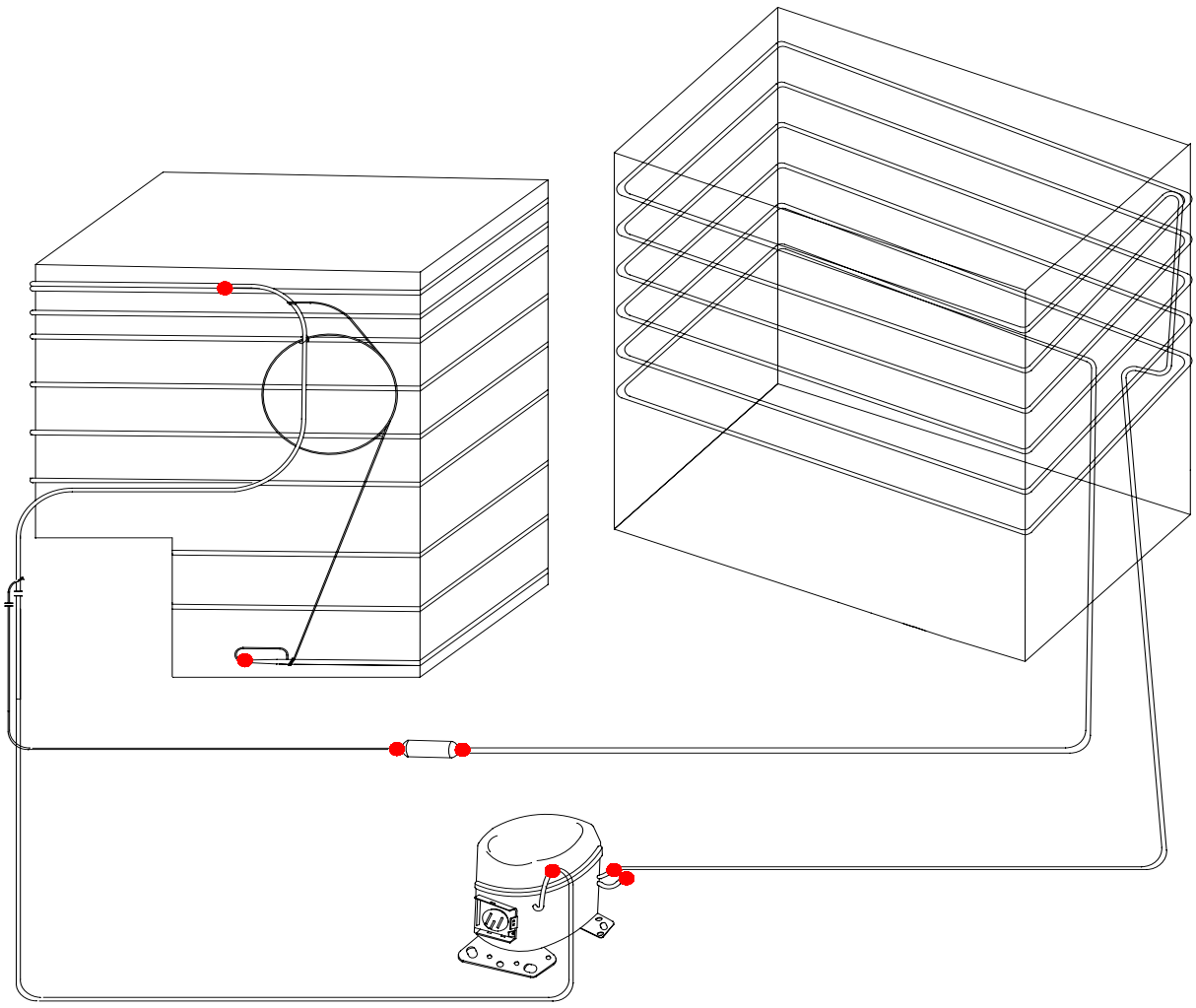
Chapter 6 System flow principle

6-1. Refrigeration flow chart



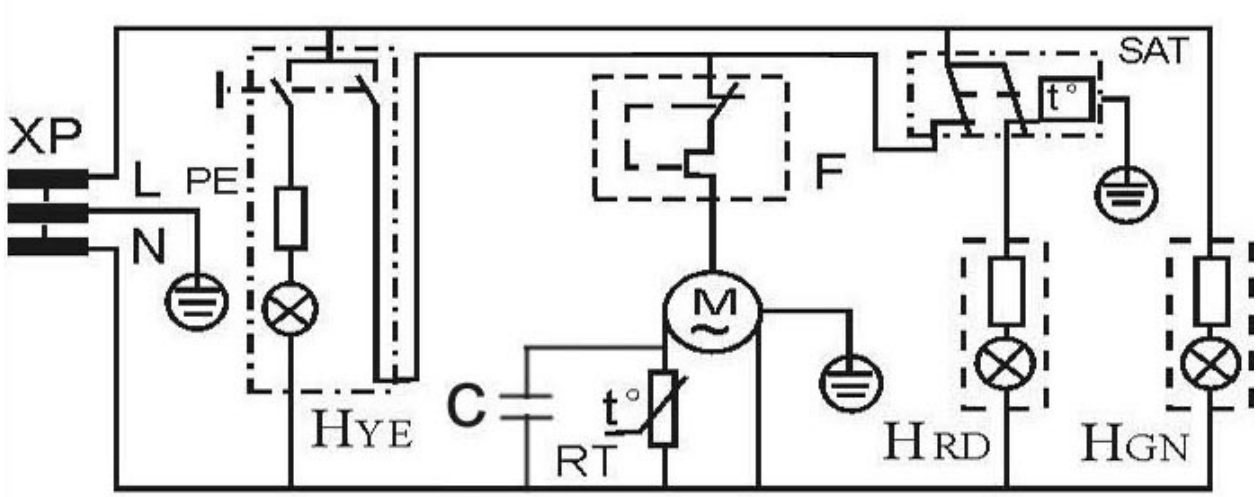
The refrigeration system of direct cooling single-system cooler belongs to the category of a single-temperature and single-control refrigerating system with one evaporators and is controlled by a single temperature control.

6-2. Refrigeration flow scenograph



Chapter 7 Circuit diagram

7-1. Brief principle diagram



XP- POWER PLUG M-COMPRESSOR RT- STARTER
HYE-YELLOW LAMP C-RUNNING CAPACITOR
HGN-GREEN LAMP F-MOTOR PROTECTOR
SAT-THERMOSTAT HRD-RED LAMP

Chapter 8 Trouble shooting

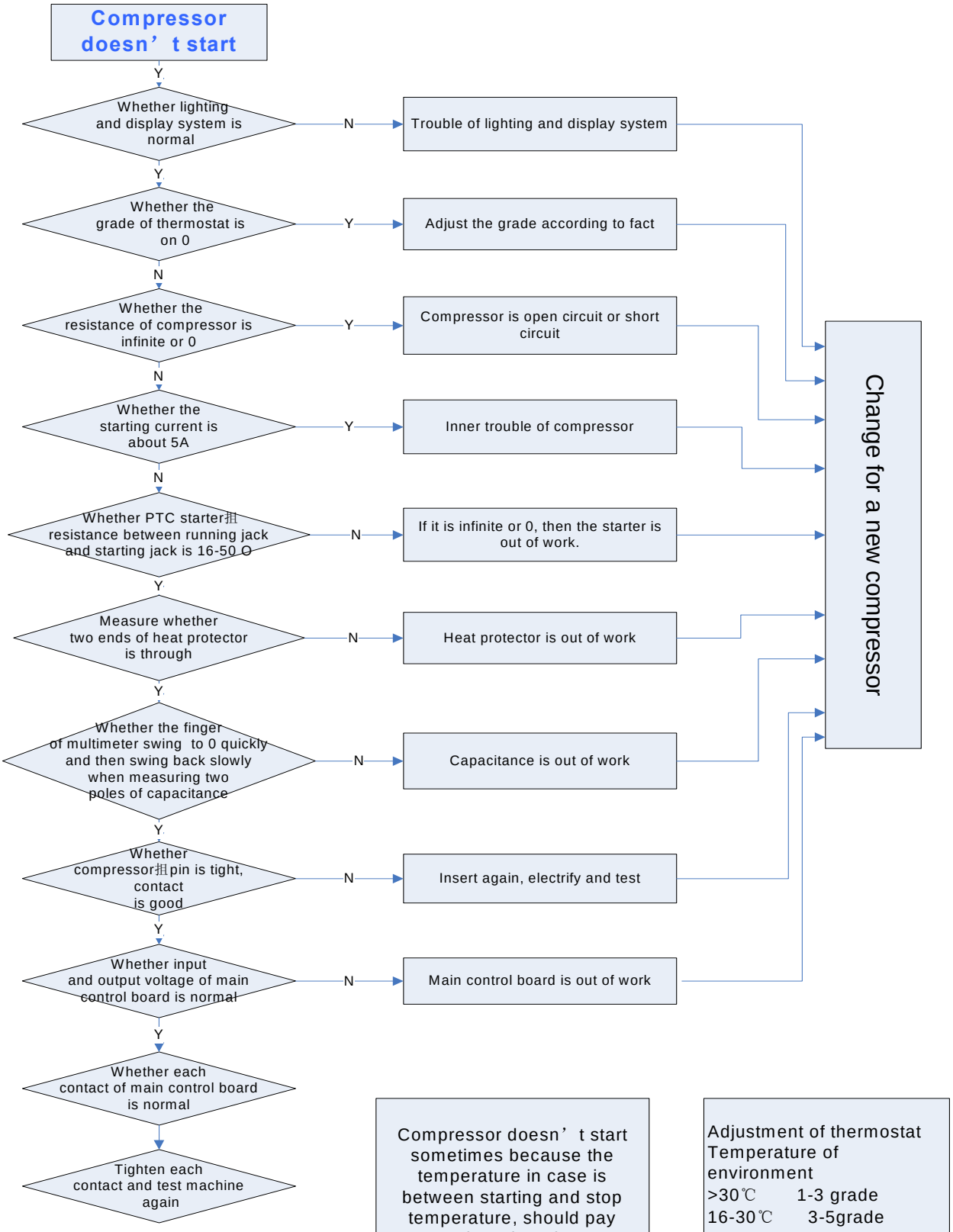
8-1. Normal phenomena

Freezer does not operate or Power-On Light is not on	Temperature control in OFF or Min or 0 position.	Move the control to a temperature setting.
	Freezer is unplugged.	Push the plug completely into the outlet.
	The fuse is blown/circuit breaker is tripped.	Replace fuse or reset the breaker
Freezer starts/stops too frequently	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long to door/lid openings.	Reduce the time of opening the door/lid
	Temperature control set too cold.	See About the operation of the freezer
Freezer operates too long	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	Reduce the time of opening the door/lid
	Temperature control set too cold.	See About the operation of the freezer
	Inadequate air circulation space around cabinet.	See Preparing to install the freezer
	Fast Freeze switch is in the ON position (on some models)	See About the operation of the freezer
Noisy operation or cabinet vibrates	Floor may be weak, causing freezer to vibrate when compressor is on.	Placing 2 X 4s (51 mm X 102 mm) under the length of the freezer will help support it and may reduce vibration.
	Cabinet is not positioned solidly on floor	See Preparing to install the freezer Or use shims for uneven floor
Freezer temperature too warm	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	Reduce the time of opening the door/lid
Foods defrosting	Temperature control OFF or Min or 0 positions.	Move the control to a temperature setting.

	Freezer is unplugged.	Push the plug completely into the outlet.
	The fuse is blown/circuit breaker is tripped.	Replace fuse or reset the breaker
	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	Reduce the time of opening the door/lid
Freezer temperature too cold	Temperature control set too cold.	See About the operation of the freezer
	Fast Freeze switch is in the ON position or has run for too long (on some models)	About the operation of the freezer
Moisture forms on outside of cabinet	Not unusual during periods of high humidity	Wipe surface
Interior light does not work (on some models)	No power at outlet.	Replace fuse or reset the breaker
	Freezer is unplugged.	Push the plug completely into the outlet.
	Light bulb burned out.	Replace bulb.
Door/lid wont fully close by itself	Package holding door/lid open.	Store only corrects quantity of food.
Slow starting time after being off	Built-in overload product.	Store only corrects quantity of food.
Excessive frost build-up	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	Reduce the time of opening the door/lid
	Not unusual during periods of high humidity	Put the freezer to suitable place

8-2. Abnormal phenomena

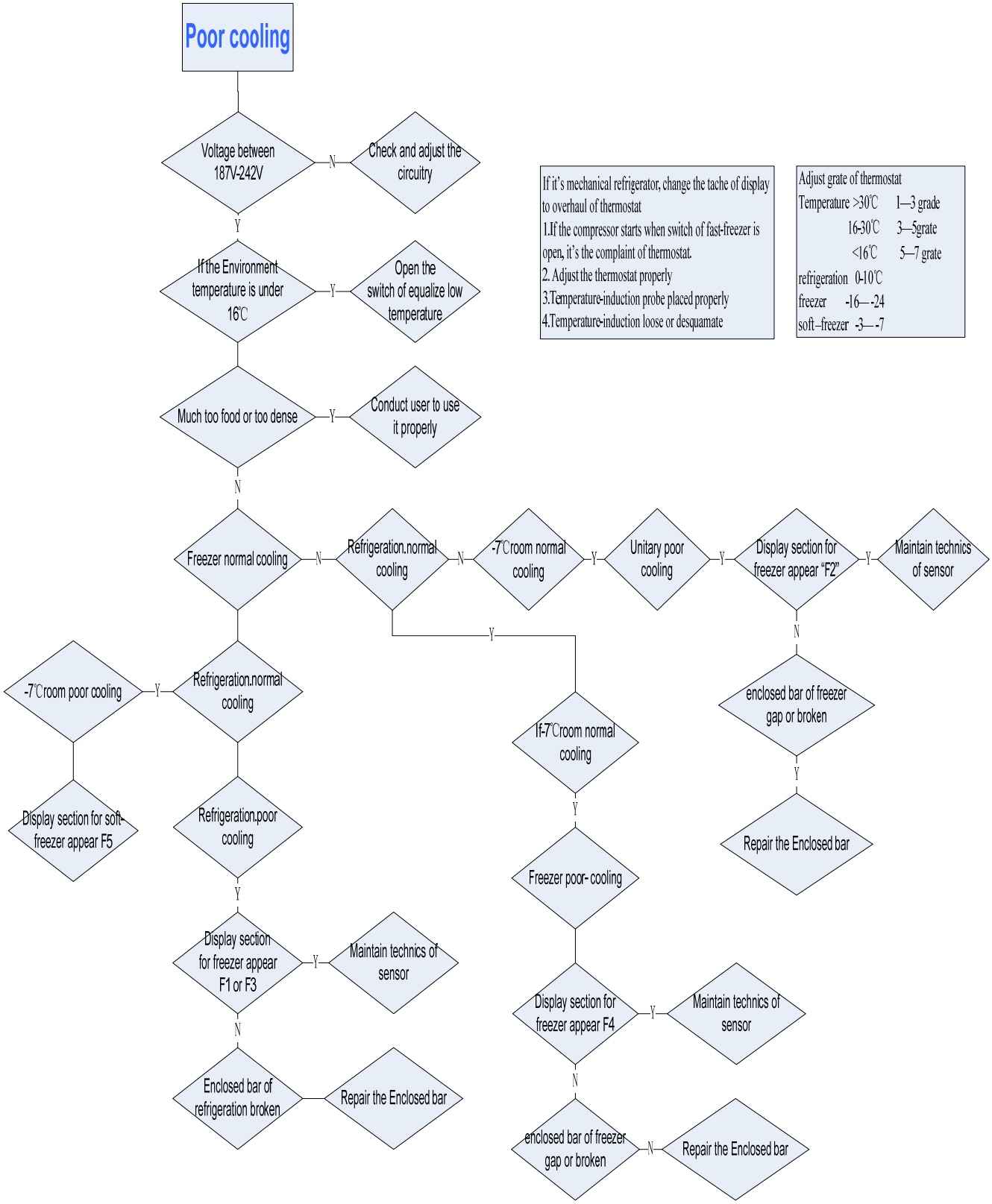
8-2-1. Compressor doesn't start


Compressor doesn't start
Whether lighting and display system is normal
N
Trouble of lighting and display system
Y
Whether the grade of thermostat is on 0
Y
Adjust the grade according to fact
N
Whether the resistance of compressor is infinite or 0
Y
Compressor is open circuit or short circuit
N
Whether the starting current is about 5A
Y
Inner trouble of compressor
N
Whether PTC starter担 resistance between running jack and starting jack is 16-50 O
N
If it is infinite or 0, then the starter is out of work.
Y
Measure whether two ends of heat protector is through
N
Heat protector is out of work
Y
Whether the finger of multimeter swing to 0 quickly and then swing back slowly when measuring two poles of capacitance
N
Capacitance is out of work
Y
Whether compressor担pin is tight, contact is good
N
Insert again, electrify and test
Y
Whether input and output voltage of main control board is normal
N
Main control board is out of work
Y
Whether each contact of main control board is normal
Tighten each contact and test machine again
Change for a new compressor

Compressor doesn't start sometimes because the temperature in case is between starting and stop temperature, should pay attention when do test

Adjustment of thermostat Temperature of environment
>30℃ 1-3 grade
16-30℃ 3-5grade
<16℃ 5-7grad

8-2-2.Poor cooling



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Sincere forever

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